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REMARKS

Claims 1-13 are pending in this application. The Examiner rejected Claims 5, 7-9 under 35 U.S.C. 112, second paragraph, rejected Claim 7 under 35 U.S.C. 102(b), rejected Claim 10 under 35 U.S.C. 103(a), allowed Claims 1-4 and 13, and indicated that Claims 5, 8 and 9 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, second paragraph, and that Claims 11 and 12 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 5 and 7-12 have been amended in the foregoing amendment.

Claims 5 and 7-9 Are Definite

The Examiner rejected Claims 5 and 7-9 under 35 U.S.C. 112, second paragraph, as being indefinite. The Applicants have amended Claims 5, 8 and 9 to delete "F" from "the compaction condition F" in Claims 5 and 9, to include an antecedent basis for torque in Claim 9, and to clarify the claimed invention in Claim 8. The Applicants also have amended Claim 7 to clarify that a compaction is completed at a different point in three different cases. Thus, Claims 5 and 7-9 are now definite.

Ogawa Does Not Anticipate Claim 7

The Examiner rejected Claim 7 as anticipated by U.S. Patent No. 3,772,892 to Ogawa ("Ogawa"). The Applicants traverse this rejection for the reasons discussed below.

The sand pile driving method of Claim 7 requires, among other elements, that a compaction condition for compacting granule by the casing pipe and a cross-sectional area of the granule pile compacted by the casing pipe are estimated during the compaction procedure; and that a compaction is completed:

(i) at a point that the pile cross-section area reaches a minimum cross-section area in a case where the compaction condition reaches a given state before the pile cross-section area reaches the minimum pile cross-section area;

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(ii) at a point that the compaction condition reaches a the given state in a case where the compaction condition reaches the given state before the pile cross-section area reaches a maximum pile cross-section area; or

(iii) at a point that the pile cross-section area reaches the maximum cross-section area in a case where the pile cross-section area of the granule pile compacted by the casing pipe reaches the maximum pile cross-section area before the compaction condition reaches the given state.

Ogawa describes that the strength of a sand column *C* can be estimated by a formula (2) as a function of the consumed electric power *E* in a motor *M*, a penetrating speed *v* in the driving or re-driving process of the casing pipe, etc. (Column 9) and that the press-charged sand volume and the sand column strength are important controlling factors for driving sand pile. *Ogawa* refers to three typical cases of sand pile conditions: (i) both the press-charged sand volume and the sand column strength are satisfied, (ii) the press-charged sand volume is sufficient but the sand column strength is not sufficient, and (iii) the press-charged sand volume is insufficient but the sand column strength is sufficient (Columns 10-11). However, *Ogawa* fails to disclose specifically what should be decided and what should be controlled in these three cases, as required by Claim 7. Accordingly, amended Claim 7 is not anticipated by *Ogawa*.

JP7-207653 Does Not Show or Suggest

the Invention of Claim 10

The Examiner rejected Claim 10 under 35 U.S.C. 103(a) as being unpatentable over JP7-207653. This rejection is respectfully traversed for the reasons discussed below.

The sand pile driving method of Claim 10 requires, among other elements, a second step for additionally driving a plurality of second piles between the previously driven first piles within the area in which each compaction is completed when a compaction condition reaches a given state.

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In contrast, JP7-207653 simply describes conventional compacted sand piles. JP7-207653 fails to show or suggest a second step of additionally driving a plurality of second piles between the previously driven first piles within the area where each compaction in the second step is completed when the compaction condition reaches a given state, as recited by amended Claim 10. Thus, Claim 10 would not have been obvious to one of ordinary skill from JP7-207653 at the time the Applicants made the claimed invention. Accordingly, Claim 10 should be allowed.

Claims 5, 6, 8, 9, 11 and 12

The Examiner indicated that Claims 5, 8, and 9 would be allowable if rewritten or amended to overcome the rejections under 35 U.S.C. 112, second paragraph. Moreover, the Examiner indicated that Claims 11 and 12 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicants amended Claims 5, 8, and 9 to clarify the claimed invention as discussed above, and amended Claims 11 and 12 in independent form to include all of the limitations of the base claim, Claim 10, and also to clarify the claimed invention. Accordingly, Claims 5, 8, 9, 11 and 12 should be allowed.

In the Office Action, the Examiner did not indicate that Claim 6 was allowed. However, the Applicants believe that Claim 6 should have been allowed because it depends on allowed Claim 1.

CONCLUSION

The foregoing is submitted as a complete response to the Office Action identified above. This application should now be in condition for allowance, and the Applicants solicit a notice to that effect. If there are any issues that can be addressed via telephone, the Examiner is asked to contact the undersigned at 404.685.6799.

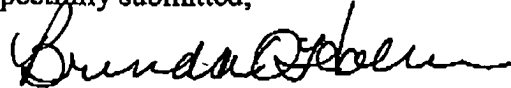
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